3.3 THREATENED AND ENDANGERED SPECIES

The Corps has identified the endangered Florida manatee (*Trichechus manatus*) and threatened loggerhead turtle (*Caretta caretta*), endangered green (*Chelonia mydas)*, leatherback (*Dermochelys coriacea)*, hawksbill (*Eretmochelys imbricata)* and Kemp's ridley (*Lepidochelys kempii)* turtles as likely occurring in the project. Sea turtle nesting has not been documented as occurring within the boundaries of Hernando County (see, Appendix C, Supplemental Information, USFWS, CAR). There is no designated critical habitat in the area.

3.3.1 SEA TURTLES.

There is no documented nesting occurrence for the sea turtles within Hernando County. However, the seagrass and algae beds located in the project area may provide foraging and resting habitat for the species. (USFWS, 1997). The USFWS recommended the NMFS be contacted for guidance on project protective measures. This recommendation will be initiated. If the project moves towards construction, protective measures would be included in the plans and specs to ensure the continued survival of the species and to avoid unnecessary alterations of sea turtle habitat or foraging area (i.e., seagrass, algae). A sea turtle observe would also be required to alert the vessel's captain of the species presence if within 100 feet of the project and to halt operations if within 50 feet of the work. (see Appendix C, Supplemental Information, Sea Turtle/Manatee Precautions).

3.3.2 MANATEE.

The manatee may traverse the area and forage of marine seagrass. For any construction contractors on this project, measures would be in place to ensure that an onboard manatee observer warns the vessel's captain/operator when the manatee is within 100 yards. The observer would have the authority to shut-down construction when the manatee is within 50 feet. Implementation of these protective measures would ensure the proposed action is not likely to adversely affect the continued survival of the species.

3.4 HARDGROUNDS.

There are no hardgrounds within the immediate project area. Hernando County maintains an artificial reef a19 miles offshore. This site known as the Richardson is constructed from surplused army tanks and bridge spans (see Figure 5, Richardson Reef Location Map). Use of this site for disposal of 333,000 cubic yards of dredge material (206 cubic yards of limerock, 124,000 cubic yards of sand, and 3,000 cubic yards of clay, peat, and silt), would provide 48 acres of additional hardground habitat, fishing and reef diving opportunities. Artificial reefs provide shelter for juvenile fishery species, attachment substrate for algae and pelagic organisms, and are very productive fishery sites for commercial and recreational fishermen.

3.5 FISH AND WILDLIFE RESOURCES

The USFWS document in the Hernando Beach Navigation Channel Improvement Coordination Act Report migratory and shorebird nesting habitat on existing spoil islands and offshore areas adjacent the main channel in the intertidal and subtidal areas. Species observed in this area are listed in **Table 9.** The USFWS Coordination Act Report can be found in Appendix C, Supplemental Information.

TABLE 9 MIGRATORY AND WADING BIRDS

Sandpiper	Brown pelican
Willets	Ring-billed gulls
American Oystercatchers	Laughing gulls
Semi-palmated plovers	Boat-tail grackles
Great Blue Heron	White Ibises
American egret	

3.6 ESSENTIAL FISH HABITAT

The project proposes direct impacts to approximately 14 acres of essential fish habitat area (i.e., sand, mudflats, seagrass). Essential fish habitat coordination is being conducted with the NMFS. **Tables 10** and **Table 11** provides a list of managed species.

Table 10 Managed Species Commonly Occurring within the Project Area

Common Name	Scientific Name
Juvenile Red Snapper	*Lutjanus campechanus*
Cobia	*Rachycentron canadum*
King mackerel	*Scomberomorus cavalla*
Bluefish	*Pomatomus saltatrix*
Dolphin	*Coryphaena hippurus*
Red Drum	*Sciaenops ocellatus*
Brown Shrimp	*Penaeus aztecus*
Pink Shrimp	*P. duorarum*
White Shrimp	*P. setiferus*

Source: Gulf of Mexico Fisheries Management Council 1998/9

TABLE 11 SPECIES MANAGED BY THE GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

Species	Seasonal Occurrence	Habitat Affinity
Brown Shrimp(Penaeus aztecus)	Adults – Year Round	Soft Bottom
Pink Shrimp(Penaeus duorarum)	Adults – Year Round	Soft Bottom
White Shrimp(Penaeus setiferus)	Adults - Year Round	Soft Bottom
Stone Crab(Meninne mercineria)	Adults - Year Round	Soft Bottom
Gag (Mycteronerca microlenis)	Adults - Year Round	Hard Bottom
Scamp (Mycteronerca nhenax)	Adults - Year Round	Hard Bottom
Cobia (Rachycentron canadum)	Adults - Year Round	Water Column
Red Drum (Sciaenons ocellatus)	Adults - Year Round Spawning – Fall and Winter	Soft Bottom
Greater Amberjack (Seriola dumerilli)	Adults - Year Round	Hard Bottom
Red Snapper (Lutianus campechanus)	Juveniles – Year Round	Soft Bottom
Lane Snapper (Lutianus synagris)	Adults – Year Round	Hard Bottom
King Mackerel (Scomberomorous cavalla)	Adults – Year Round	Water Column
Spanish Mackerel (Scomberomorous maculates)	Adults – Year Round	Water Column

Source: Gulf of Mexico Fishery Management Council 1998.

3.7 COASTAL BARRIER RESOURCES

No designated coastal barrier resources would be impacted.

3.8 WATER QUALITY.

State water quality standards would be met at all times during construction.

3.9 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW).

The project proposes no adverse effects from the release/suspension/discharge of any contaminants or pollutants. Tests conducted for HTRWs in the project area did not detected the presence or harmful levels of any known HTRWs.

3.10 AIR QUALITY

The existing air quality of the project site vicinity is typical of a coastal gulf community influenced by gulf winds. Air quality is good on most days with poor air quality the exception. The project would have some temporary and minor impacts on this value.

3.11 NOISE

The sound of vessels navigating the channels is the predominant sound. Airplane traffic and localized vehicular traffic are other sounds heard in this coastal water community. Disharmony in the accustomed sounds would occur during construction activities. Impacts would be temporary and propose no lasting adverse effects.

3.12 AESTHETIC RESOURCES

The surrounding aesthetics are typical of a sub-tropical coastal community in Florida. Large expanse of undeveloped land surrounds the project site to the north, south, and east. The Gulf of Mexico is found to the west. The deployment of construction equipment to the area may be viewed by some as impacting to area esthetics. Impacts would be temporary and propose no long-term or adverse effect to area aesthetics.

3.13 RECREATION RESOURCES

Temporary disruption would occur during construction. The public boat ramp at the northeast would be unavailable to local users. This area would provide the access point for loading barge(s) for transport of material to the offshore reef location. All impacts to this value are temporary. At conclusion of the project, the area would be returned to normal. Values enjoyed before construction should be enjoyed at completion of the project.

3.14 NAVIGATION.

Recreational and commercial vessels use the channel to access gulf waters to pursue fishing opportunities. Some impact disruption could result to this value during construction. In that, current pattern of navigation may be altered; this impact would be temporary, returning to normal patterns at the project's completion.

3.15 HISTORIC PROPERTIES

A Historic Assessment and Phase I Cultural Resources surveys have been completed for portions of the Hernando Beach Project. A remote sensing survey was conducted of the existing Hernando Beach Channel from the entrance at Minnow Creek to the channel light in the Gulf and the alternate channel designated as Area 1. A total 182 magnetic anomalies were identified during the survey. Only 49 of those anomalies produced signatures that may be indicative of submerged cultural resources and warrant further investigations. A terrestrial survey conducted at the old mining pits on the spoil disposal areas yielded negative results. A previously recorded archeological site 8He403 was identified on Coon Key Point.

Investigations produced a number of artifacts, but insufficient information was collected to determine National Register (NR) eligibility. The State Historic Preservation Office (SHPO) concurred that additional investigations were needed to determine NR status for site 8He403 and Phase II evaluations for the 49 anomalies identified in the channel.

4 ENVIRONMENTAL EFFECTS

4.1 INTRODUCTION.

This section is the scientific and analytic basis for the comparisons of the alternatives. See **Table 5** in section 2.0 Alternatives, for summary of impacts. The following includes anticipated changes to the existing environment from direct and indirect effects, irreversible and irretrievable commitment or resources, unavoidable effects, and cumulative effects.

4.2 GENERAL ENVIRONMENTAL EFFECTS

The USFWS in accordance with the provisions of the Fish and Wildlife Coordination Act, as amended, and the Endangered Species Act of 1973, as amended, issued a report (1997), wherein inspections were conducted on the project area intertidal and subtidal zone, spoil islands and beaches, and possible federally threatened and endangered species habitat. For the intertidal and subtidal zone, the USFWS stated that sidecasting or pumping material on undiked disposal islands or the creation of new disposal islands could cause significant mortality to benthic organisms, temporarily decreased water quality and adversely impact macroalgae and seagrass beds. Benthic mortality would be temporary as most benthic organisms have a high reproductive rate and recruitment potential. They further stated that turbidity from runoff could suffocate fish. Some fish and other organisms may die or be driven off during sand placement, but those surviving are expected to repopulate within a short time. Turbidity could also affect water clarity, which could kill or impede the growth of macroalgae or seagrasses. The reestablishment of macroalgae and seagrasses FWS indicated was of great concern. Seagrass beds are ecologically and economically valuable as they support algae, fauna and epiphytes, commercially important fish and shellfish and larger marine species. Epiphytes utilize the blades and branches of seagrasses and algae, which also provide food and shelter for epifauna. In-fauna, including clams and annelid worms find food and shelter within bed sediments. Grazers and predators harvest these resources. Common invertebrates include queen conch *Strumbus gigas,* and other gastropods, West Indian sea star *Oreaster reticulata,* sea cumbers, sea urchins and shrimp.

The USFWS believes that mitigation should be required for any seagrass impacts. However, offsite mitigation may be more appropriate, given the reestablishment of grass beds in the new channel may be difficult due to boat traffic and unsuitable

water depth. Recommended mitigation included transplanting from nearby seagrass areas to areas currently void of seagrass beds. Addressing the initial proposal to blast existing limerock, the USFWS stated concussion from the blast could result in fish mortality. Note: The project no longer proposes blasting to remove the existing limerock. Material proposed for removal consists of unconsolidated sediments and limerock. The limerock was found to be soft to moderately hard and should only require the efforts of mechanical dredge to achieve removal.

The USFWS also commented that material placement on existing disposal islands could result in loss of established vegetation and could create a barren substrate. Placement of material to expand littoral zone would result in loss of submerged bottoms. Three disposal alternatives were evaluated in addition to existing spoil islands. The USFWS recommended two of the four sites inspected, a 0.33-acre remnant hydric pine flatwood system located between Hernando Beach Road and State Route (SR) 595 currently used as a private golf course, and west of Hernando Beach Road adjacent to the intersection of SR 595. The two remaining tracts proposed wetland impacts and were not recommended.

Use of all or some of the existing islands as disposal sites the USFWS felt may be appropriate. Several of the islands have eroded to bare beach or shoals. The recommended placement for spoil would be an isolated island chain rather than a contiguous island. Concern was communicated for containment of the spoil material to avoid release into the surrounding waters and possible disturbance of nesting birds. The USFWS recommended the Corps perform seagrass mapping for an accurate evaluation/development of a mitigation plan. Reevaluate the need to extend the channel to the 8-foot contour, and define the limits of the project, including the selection of the realignment channel and spoil site, beneficial use of spoil material and provide a more definitive description of the habitats affected by the project.

Project revisions have been proposed since the USFWS 1997 report. The proposal would 1) extends the channel to the 6-foot contour instead of the 8-foot contour; 2) creates a turning basin or widener east of the main channel in lieu of creating a new channel, 3) reduces the channel width to 80 feet from 100 feet, and 4) provides a consistent designed depth of –6 feet and/or a proposed project depth of –8 feet mllw (this figure includes 2 feet of overdredge which includes 1-foot required overdredge and 1-foot allowable overdredge). Material associated with the project would be used to create 48 acres of essential fish habitat at the Richardson Reef, approximately 19 offshore of Hernando Beach (see **Figure 6**, Richardson Reef Location map and **Figure 6A**, for a cross-section of the proposed reef construction).

4.3 VEGETATION

The project proposes no direct impacts to wetlands at Little Lake or submerged resources within the artificial reef location. The submerged areas of the channels within Hernando Beach and the Gulf contain about 88 acres of seagrass. Dredging impacts are proposed to about 14 acres of these resources, the dominant species being *Halodule* and *Thalassia.* A no action alternative would eliminate any proposed impacts but would continue navigation safety concerns and delays experienced by commercial fishermen.

4.3.1 PROPOSED PROJECT

The proposed action would dredge the main channel to a bottom with of 80 feet, dredge the channel to a depth of –6 ft., and provide a 150-foot turning basin with at the southeastern end of North Hernando Beach, with offshore disposal of dredged material.

4.3.1.1 Dredge Area.

No adverse effects should result from the proposed action. Emergent resources are not established within the immediate dredging area.

4.3.1.2 Disposal Area.

Little Lake is a 4 acre site created from past mining activities. The eastern lobe of the lake is about 12 feet deep with the remaining depth at 38 feet mean low water. No vegetation of significance is established on the banks of the lake. The discharge of material at this location would have no adverse environmental impacts. However, the creation of vegetated littoral zone in this area would benefit fish and wildlife species by providing habitat diversity to include .

4.4 THREATENED AND ENDANGERED SPECIES

4.4.1 PROPOSED ACTION.

The proposed action would dredge the main channel to a bottom with of 80 feet, dredge the channel to a depth of –6 ft., and provide a 175-foot turning basin with south of the main channel at the eastern with navigation aids, and offshore disposal of dredged materials.

4.4.1.1 Alternative 1, No Action Alternative (Status Quo).

This alternative would have no adverse impacts on threatened or endangered species.

4.4.1.2 Alternative 2, Non-designed Channel with Emergent Habitat Creation and Artificial Reef Expansion

This alternative has the potential to impact the manatee. The project's plans and specs. would require an onsite observer with the authority to stop construction should be manatee be within 50 yards of project action. See Appendix C for inclusive language that protects the endangered manatee and sea turtles. The project proposed no impact to the sea turtle. There are no known occurrences of the sea turtle in Hernando Beach.

4.4.1.3 Alternative 3, Non-designed Channel with Disposal on Existing Shoreline and Artificial Reef Expansion.

This alternative has the potential to impact the manatee. The project plans and specs would require an onsite observer with the authority to stop construction should the manatee be within 50 yards of project action. See Appendix C, Supplemental Information for inclusive language that protects the endangered manatee and sea turtles. The project proposed no impact to the sea turtle. There are no known occurrences of the sea turtle in Hernando Beach.

4.4.1.4 Alternative 4, Non-designed Channel with Artificial Reef Expansion (Preferred Alternative).

This alternative has the potential to impact the manatee. The project plans and specs would require an onsite observer with the authority to stop construction should be manatee be within 50 yards of project action. See Appendix C for inclusive language that protects the endangered manatee and sea turtles. The project proposed no impact to the sea turtle. There are no known occurrences of the sea turtle in Hernando Beach.

4.5 HARDGROUNDS

4.5.1 PROPOSED ACTION.

The proposed action would dredge the main channel to a bottom width of 80 feet, the depth to –6 ft mllw (not including 2 feet of allowable overdrege), create a 150-foot-wide turning basin with wideners at the southeastern end of North Hernando Beach main channel, and would create 48 acres of offshore artificial reef.

4.5.1.1 Alternative 1, No Action Alternative (Status Quo).

The project action proposes no adverse impact but beneficial component to this value with the creation of 48 acres of hardground at the Richardson Reef site located about 16 miles offshore.

4.5.1.2 Alternative 2, non-designed channel with emergent habitat creation and artificial reef expansion.

The hardground located within the project area would not be impacted by the project's action

4.5.1.3 Alternative 3, Non-designed channel with disposal on existing shoreline and artificial reef expansion

This area has not been surveyed for submerged resources. There is the possibility such resources may exist in this area.

4.5.1.4 Alternative 4, non-designed channel with artificial reef expansion (Preferred Alternative).

The project would provide the opportunity for the eventual establishment of 48 acres of hardground habitat with the deployment of reef material.

4.6 FISH AND WILDLIFE RESOURCES.

4.6.1 PROPOSED ACTION.

The proposed action would dredge the main channel to a bottom width of 80 feet, a depth of –6 ft (not including 2 feet of allowable overdrege), create a 150-foot-wide turning basin with wideners at the southeastern end of North Hernando Beach main channel, and would create 48 acres of offshore artificial reef.

4.6.1.1 Alternative 1, No Action Alternative (Status Quo).

This alternative proposes no adverse affect to existing resources.

4.6.1.2 Alternative 2, non-designed channel with emergent habitat creation and artificial reef expansion.

The project the discharge of materials at Little Lake may have temporary effect on fish and wildlife species in this area. Successful establishment of resources at Little Lake would provide habitat diversity in this area and increases to the food web.

4.6.1.3 Alternative 3, Non-designed channel with disposal on existing shoreline and artificial reef expansion.

Temporary impacts would result to motile species that would relocate during project action. Benthic organism in the area would also experience some adverse impacts. These impacts should be temporary with successful colonization by benthic within 1 to 2 years of project action.

4.6.1.4 Alternative 4, non-designed channel with artificial reef expansion (Preferred Alternative).

This alternative proposes impacts to 14 acres of seagrass habitat. These impacts would be mitigated with 48 acres of hardbottom fishery habitat with the expansion of the Richardson Reef located 16 offshore of Hernando Beach.

4.7 ESSENTIAL FISH HABITAT.

4.7.1 PROPOSED ACTION.

The proposed action would dredge the main channel to a bottom width of 80 feet, a depth of -6 ft (not including 2 feet of allowable overdrege), create a 150-foot-wide turning basin with widenerss at the southeastern end of North Hernando Beach main channel, and would create 48 acres of offshore artificial reef.

4.7.1.1 Alternative 1, No Action Alternative (Status Quo).

The alternative would have no adverse effects on this values.

4.7.1.2 Alternative 2, Non-designed Channel with Emergent Habitat Creation and Artificial Reef Expansion.

The project has the potential to impact 14 acres of established seagrasses within the channel.

4.7.1.3 Alternative 3, Non-designed Channel with Disposal on Existing Shoreline and Artificial Reef Expansion.

This alternative proposes impacts to 14 acres of seagrass habitat. These impacts would be mitigated with 48 acres of hardbottom fishery habitat with the expansion of the Richardson Reef located 16 offshore of Hernando Beach.

4.7.1.4 Alternative 4, Non-designed Channel with Artificial Reef Expansion (Preferred Alternative).

This alternative proposes impacts to 14 acres of seagrass habitat. These impacts would be mitigated with 48 acres of hardbottom fishery habitat creation proposed with expansion of the Richardson Reef located 16 offshore of Hernando Beach.

4.8 NAVIGATION.

The proposed action would have beneficial effects on navigation by providing a consistent depth and width during low tide cycles. Navigation hazards from protruding rock outcrops and blind curves would be eliminated or minimized. However, the blind curves and rock outcrops within the interior north-south channels would not be removed by the proposed action. These channels provide navigation ingress and egress for single-family residential structures.

4.9 HISTORIC PROPERTIES.

Archival review and historic assessment, including review of the current National Register of Historic Places listing, remote sensing and terrestrial surveys have been conducted to determine if significant cultural resources are located within the area of potential effect for the proposed project. The cultural resources survey report has been coordinated with the SHPO (letter dated April 23, 2002). Communication from SHPO indicates additional investigations are required to determine National Register eligibility and effects on historic properties. The project will be in compliance with this Act and with the Archeological and Historic Preservation Act, as amended (PL 93-291) when additional investigations are completed.

4.8 SOCIO-ECONOMIC

Commercial bait fishermen are located within the southeastern and central area of the Hernando Beach. Gulf Coast bait shrimpers have seen a threefold increase in trips since 1990 (14.17 trips in 1990 to 25.8 trips in 1999). Shrimp fishing catch per day has increased to 600,000 pounds to an industry total of $25 million (see Appendix A, Economics). The proposed project would reduce delays currently being experienced by commercial fishermen or in this area. Potential vessel damage would be eliminated or reduced by increasing the channel's width and depth, removing hazardous rocks, and aligning blind curves.

4.9 AESTHETICS

Project actions propose no adverse effects to area aesthetics. Temporary impacts may be experienced by some residents from the present of dredge equipment in the area. No adverse effects would occur to this value.

4.10 RECREATION

Currently recreational boaters are relegated to use of the channel after the passing of commercial vessels. Secondary components of the project would widen the channel to allow safe passage of two vessels.

4.11 COASTAL BARRIER RESOURCES

The project proposes no adverse effects to these resources.

4.12 WATER QUALITY

Water quality is a not a concern. No adverse effect would result to this value from the proposed action. Dredging turbidity levels would be monitored to ensure existing State standards are maintained.

4.13 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

There are no known concentrations of metals, pollutants, or contaminants in the project or disposal areas.

4.14 AIR QUALITY

The project would have no adverse effect on this value. The project area is a coastal community with excellent air quality.

4.15 NOISE

Operation of dredging equipment may add unwelcome decibels to the community. This impact would be temporary from 130 to 160 days.

4.16 PUBLIC SAFETY.

Navigation improvements proposed for the existing channel would remove existing concerns associated with a narrow, shallow, and blind channel.

4.17 NATURAL OR DEPLETABLE RESOURCES

The project proposes adverse affect to approximately 14 acres of seagrasses. These impacts would be offset with the creation of 48 acres of offshore artificial reef habitat area.

4.18 SCIENTIFIC RESOURCES

The project proposes no impact to these resources

4.19 NATIVE AMERICANS

The project proposes no impact to Native American resources.

4.20 URBAN QUALITY

The project area is a coastal community situated between 7,000 acres of preserved lands. The proposed action would not degrade the urban environment since the nearest urban environment would be the Greater Tampa, St. Petersburg areas, approximately 60 miles north. The smell associated with dredging activities may be a nuisance odor for those with this sensitivity. These impacts would be temporary and would dissipate at the project's completion and equipment removal.

4.21 SOLID WASTE

The project action would remove an accumulation of sand and rock material found in the channel. No adverse effects should result from the proposed action.

4.22 DRINKING WATER

No adverse effects are proposed to potable water sources. The 333,000 cubic yards of dredged material, primarily rock, would be disposed of in a compatible marine environment.

4.23 CUMULATIVE IMPACTS

The project proposes no adverse cumulative impacts to protected species, water quality or other resources. The project represents increment to the cumulative

widening and deepening of the harbor. However, the incremental impacts of the action on the environment would be mitigated. Approximately 48 acres of hardbottom creation in the form of artificial reef expansion would provide out-of-kind mitigation for the impacts proposed to about 14 acres of marine seagrass.

4.23.1 PROTECTED SPECIES.

The project's action would not adversely affect protected species. Manatee and sea turtle precautions would be part of the project's plans and specs.

4.23.2 WATER QUALITY.

There should be no adverse impact during or after project construction. State water quality standards would be maintained with monitoring of dredging actions. Only deminimis discharge associated with placing material of a barge for transport to the reef deployment location would be associated with the project. .

4.24 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.24.1 IRREVERSIBLE

The project area does not contain resources that would experience irreversible impact from the project.

4.24.2 IRRETRIEVABLE

The project proposes no adverse effects to irretrievable resources.

4.25 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Approximately 14 acres of seagrass impacts are unavoidable. The project was designed to avoid and minimize environmental impacts to fullest extent practicable. Avoidance was not possible given the scattered locations and proliferation of seagrasses in this area. The channel's width and slopes were design to avoid and minimize potential adverse environmental effects. Impacts were reduced from about 23 acres to 14 acres.

4.26 INDIRECT EFFECTS

Project action would not have any adverse indirect effects. It is anticipated that seagrasses would re-establish at quantities that equal or exceed the proposed impacts within at least 5 years. Seagrass reestablishment appears to flourish best in the channel. Additionally, project components associated with the artificial reef creation would contribute 48 acres of potential benefits to the aquatic and marine environment with the proposed reef expansion.

4.27 COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES

The proposed action is compatible with this act as evidence with support received from the State DEP, Fish and Wildlife Conservation Commission, the Audubon Society, the U.S. Coast Guard and other. Letter supporting the proposed action can be found in Appendix E , Correspondence of the Detailed Project Report,

4.28 CONFLICTS AND CONTROVERSY

There are no known unresolved conflicts or controversy associated with the project. Local residents would prefer dredged sands placement adjacent spoil islands to the north. This action would allow the creation of a public beach for residents who extensively use the area to the north. Local residents have communicated a strong preference for this disposal option. This action is not recommended due to the disruptions that would occur to nesting, roosting, foraging, habitat, and resting patterns of shore and migratory birds. Discharge of dredged sand in this area also has the potential to adversely affect substantially more submerged aquatic resources (i.e., seagrass, algae, benthic substrate, and hardbottom).

Residents should receive the desired beach with placement of maintenance dredged material north of the main channel and adjacent to Coon Key Point. This area is existing spoil mounds that would be expanded to create the proposed Pederson Park. Should the identified site remain the preferred disposal option, the public's desire for a beach in this area would be realized.

4.29 UNCERTAIN, UNIQUE, OR UNKNOWN RISKS

Project action proposed no actions as identified under this act.

4.30 PRECEDENT AND PRINCIPLE FOR FUTURE ACTIONS

The project would not establish precedents or principle for any future Corps related action.

4.31 ENVIRONMENTAL COMMITMENTS

The U.S. Army Corps of Engineers and contractors commit to avoiding, minimizing or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications:

a. Manatee protection measures
b. Compliance with requirements of the Water Quality Certification
c. Compliance with the requirements of the Biological Opinion from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service
d. Other requirements as discussed in the section below on "Compliance with Environmental Requirements.

4.32 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

4.32.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Environmental information on the project has been compiled and this Environmental Assessment has been prepared. The project is in compliance with the National Environmental Policy Act.

4.32.2 ENDANGERED SPECIES ACT OF 1973

Formal project coordination with NMFS would be initiated with issuance of this document. NMFS project input has been previously requested during the scoping process by letter dated June 28, 2000. However, formal project coordination would be initiated with issuance of this document. It is anticipated the project would be in compliance with this act.

4.32.3 FISH AND WILDLIFE COORDINATION ACT OF 1958

This project has been coordinated with the U.S. Fish and Wildlife Service (USFWS). A Coordination Act Report (CAR) was submitted by the USFWS. Since receipt of the report, project revisions include extension of the channel an additional 4,000 feet to the 6-foot Gulf contour. Resources that may exist in this area have not been surveyed. Supplemental coordination may be required with the USFWS. The Corps believes the project would be in full compliance with the intent of this act.

4.32.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

(PL 89-665, the Archeology and Historic Preservation Act (PL 93-291), and Executive Order 11593)
Archival research, an historic assessment, remote sensing and terrestrial surveys, and coordination with the Florida State Historic Preservation Officer (SHPO) have been conducted in accordance with the National Historic Preservation Act, as amended; the Archeological and Historic Preservation Act, as amended and Executive Order 11593. SHPO coordination was initiated August 22, 2001. In an April 23, 2002 response, the SHPO concurred that additional investigations were required to determine National Register eligibility and effects on historic properties. The project will be in compliance with each of the Federal laws after the additional investigations are completed.

4.32.5 CLEAN WATER ACT OF 1972

The project is in compliance with this Act. A Section 401 water quality certification dated would be obtained from Florida Department of Environmental Protection prior to project action. Appendix A contains the evaluation pursuant to Section 404(b)(1) of the act.

4.32.6 CLEAN AIR ACT OF 1972

No air quality permits would be required for this project action. Beyond the amount of emissions common to such project operations, no significant quantities of

pollutants would affect the community's existing air quality. The project site is a coastal community that receives coastal winds that eliminates any potential air quality concerns.

4.32.7 COASTAL ZONE MANAGEMENT ACT OF 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix B. The State is being asked to concur with this statement.

4.32.8 FARMLAND PROTECTION POLICY ACT OF 1981

No prime or unique farmland would be impacted by implementation of this project. This act is not applicable.

4.32.9 WILD AND SCENIC RIVER ACT OF 1968

No designated Wild and Scenic river reaches would be affected by project related activities. This act is not applicable.

4.32.10 MARINE MAMMAL PROTECTION ACT OF 1972

Incorporation of the safeguards used to protect threatened or endangered species during dredging and disposal operations would protect any marine mammals in that may be in the area, therefore, this project complies with the intent of this act.

4.32.11 ESTUARY PROTECTION ACT OF 1968

No designated estuary would be affected by project activities. This act does not apply.

4.32.12 FEDERAL WATER PROJECT RECREATION ACT

The principles of the Federal Water Project Recreation Act, (Public Law 89-72) as amended, have been fulfilled by complying with the recreation cost sharing criteria as outlined in Section 2 (a), paragraph (2).

4.32.13 FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

The project is being coordinated with the National Marine Fisheries Service (NMFS) and is in compliance with the act. Project input and comments where solicited from the NMFS and others interested Federal, State, local, and private resources agencies by letter dated June 28, 2000. A more formal request for input would be request with forwarded of this document (see Section 4.32.20).

4.32.14 SUBMERGED LANDS ACT OF 1953

The project would occur in waters of the United States. The State of Florida sovereignty would not extend 16 miles seaward of the shorelines of Hernando Beach. This act is not applicable.

4.32.15 COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990

There are no designated coastal barrier resources in the project area that would be affected by project action. These acts are not applicable.

4.32.16 RIVERS AND HARBORS ACT OF 1899

The proposed work would not obstruct navigation of waters of the United States. Navigation enhancements would result from the project for commercial and recreational vessels. The proposed action has been subject to public notice, public meeting, and other evaluations methods normally conducted for activities subject to this act. The project is in full compliance.

4.32.17 ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected. The project would be coordinated with the National Marine Fisheries Service with issuance of this document. The Corps believes the project would be in full compliance with act.

4.32.18 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

The project is in compliance with these acts. The project proposes no adverse effects to habitat currently used by the recognized species.

4.32.19 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

The term "dumping" as defined in the Act (3[33 U.S.C. 1402](f)) does not apply to the disposal of material proposed for placement of rock material for artificial reef construction or artificial reef creation for mitigation. Therefore, the Marine Protection, Research and Sanctuaries Act do not apply to this project. The disposal activities addressed in this EA have been evaluated under Section 404 of the Clean Water Act.

4.32.20 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Project action would impact approximately 14 acres of scattered seagrass beds established throughout the areas proposed for dredging. The possibility exists this impact may be more extensive. A resources survey was not conducted in the area of the channel's planned extension to the 6-foot contour. Creation of additional marine reef at the proposed (AH Richardson Reef) site would provide 48 acres of essential fish habitat which offset and compensate resources loss from planned channel improvements. The Corps believes dredging the channel would create conditions favorable for seagrass recruitment and proliferation within 2-3 years. A similar construction project involving channel extension and maintenance dredging occurred north of Hernando Beach at Bayport. One year following construction, seagrass recovery met or exceeded the percent cover required under the authorizing

permits. Natural recovery was permitted, and the seagrasses identified prior to dredging continued to return to the dredged area. The success criteria, monitoring protocol, and monitoring schedule used for the Bayport Channel could be utilized for this project, if considered necessary. This section contains a more extensive assessment of Essential Fish Habitat (EFH) can be found in 4.7. Coordination with the National Marine Fisheries Service would be further initiated with the NMFS forwarding of this document.

4.32.21 E.O. 11990, PROTECTION OF WETLANDS

No wetlands would be affected by project activities. This project comply with the goals of this Executive Order.

4.32.22 E.O. 11988, FLOOD PLAIN MANAGEMENT

The project is in the 100-year base flood plain and has been evaluated in accordance with this Executive Order. Project action would not increase flooding occurrences.

4.32.23 E.O. 12898, ENVIRONMENTAL JUSTICE

The project proposes no adverse effects to communities designated under this Executive Order.

4.32.24 E.O. 13089, CORAL REEF PROTECTION

The planned Federal action proposes no adverse effects coral reef communities or ecosystems. The project would protect such communities by providing an alternative site for anglers and scuba divers to enjoy recreational or viewing opportunities.

4.32.25 E.O. 13112, INVASIVE SPECIES

Neither the project area or dredge material placement area would require the treatment, removal, or disposal of invasive species.

5 LIST OF PREPARERS

5.1 PREPARERS

C.L. Brooks, Biologist
Terry Jordan, M.E., Biologist
Rea Boothby, Biologist
Tommy Birchett, Archeologist
Peter Besrutchko, Environmental Engineer
Tracey Lesser, Civil Engineer
Emilio Gonzalez, Civil Engineer

5.2 REVIEWERS

Kenneth R. Dugger, Supervisory Biologist
Dorothy Boardman, Council
John Pax, Council

6 PUBLIC INVOLVEMENT

6.1 SCOPING AND DRAFT EA

A scoping letter for the proposed action was issued on June 28, 2000. A copy of the referenced letter can be found in Appendix F, Correspondence of the Detailed Project Report. The Corps' efforts to secure public involvement for this study is summarized in Table12.

TABLE 12 PUBLIC INVOLVEMENT

DATE	ACTION
September 1994	Field trip by Corps to see project area
June 1997	Town hall meeting
July 1997	Meeting with Board of County Commissioners
August 1997	Town hall meeting and meeting with Board of County Commissioners
April 1998	Meeting to discuss FCSA/PSP
June 1998	Site visit with resource agencies
February 1999	Meeting with Board of County Commissioners
March 1999	Site visit by Corps study team
February 2000	Meeting with Board of County Commissioners
April 2000	Meeting with commercial fishermen
May 2000	Town hall meeting
June 2000	Stakeholders meeting
August 2000	Site visit with U.S. Fish and Wildlife Service
December 2000	Site visit with resource agencies
June 2001	Meeting with Board of County Commissioners
June 2001	Site visit with Corps' Waterways Experiment Station research personnel
October 2002	Town hall meeting

A concerted effort was made to bring the public, particularly the resource agencies, into the plan formulation. The transcript from the public scoping meeting as well as written comments received can be found in Appendix H of the Detailed Project Report.

6.2 AGENCY COORDINATION

Effort were made to involve the appropriate State, Federal, Local, and private agencies in the study and it's outcome. This process was either in the form of written communication, public meetings, teleconferences, or other means of communications.

6.3 LIST OF RECIPIENTS

Federal, State, and local agencies receiving a scoping letter and copy of the draft project report are listed in Table 13. Table 14 list the individuals and other interested parties who received similar notification.

TABLE 13 FEDERAL AGENCIES

COMMANDER (OAN) SEVENTH COAST GUARD DISTRICT 909 SE 1ST AVENUE BRICKNELL PLAZA FEDERAL BLDG MIAMI FLORIDA 33131-3050	REGIONAL DIRECTOR US FISH AND WILDLIFE SERVICE 1875 CENTURY BOULEVARD ATLANTA, GEORGIA 30345-3301
FIELD SUPERVISOR US FISH AND WILDLIFE SERVICE 6620 SOUTHPOINT DR S SUITE 310 JACKSONVILLE FLORIDA 32216-0912	MS. GEORGIA CRANMORE NATIONAL MARINE FISHERIES SERVICE CHIEF, PROTECTED SPECIES BRANCH 9721 EXECUTIVE CENTER DRIVE ST. PETERSBURG, FL 33702
REGIONAL DIRECTOR US FISH AND WILDLIFE SERVICE 1875 CENTURY BOULEVARD ATLANTA, GA 30345	ASSISTANT REGIONAL ADMINISTRATOR NAT MARINE FISHERIES SERVICE HABITAT CONSERVATION 9721 EXECUTIVE CENTER DRIVE NORTH ST. PETERSBURG, FL 33702
NATIONAL MARINE FISHERIES SERVICE 3500 DELWOOD BEACH ROAD PANAMA CITY, FLORIDA 32408	NATIONAL MARINE FISHERIES SERVICE JACKSONVILLE AREA OFFICE 6620 SOUTHPOINT DRIVE, SUITE 310 JACKSONVILLE, FLORIDA 32216-0912
SOUTHERN REGION FORESTER US FOREST SERVICE 1720 PEACHTREE ROAD NW ATLANTA, GA 30309-2405	REGIONAL DIRECTOR FEMA INSURANCE & MITIGATION DIV 3003 CHAMBLEE-TUCKER ROAD ATLANTA, GA 30341
REGIONAL ENVIRONMENTAL OFFICER HOUSING & URBAN DEVELOPMENT ROOM 600 C 75 SPRING STREET SW ATLANTA, GA 30303-3309	US DEPARTMENT OF AGRICULTURE THE NATURAL RESOURCES CONSERVATION SERVICE TAVARES SERVICE CENTER 32235 DAVID WALKER DR TAVARES, FL 32778-4954
HEINZ J. MUELLER US ENVIRONMENTAL PROTECTION AGENCY 61 FORSYTH STREET ATLANTA, GA 30303-8960	DIR OFFICE OF MARINE RECREATIONAL FISHERIES NATIONAL MARINE FISHERIES SERVICE, WASHINGTON, DC 20235

TABLE 13A STATE AND LOCAL AGENCIES-:

FLORIDA DEPT OF ENV PROTECTION BUREAU OF SURVEY & MAPPING, DIV OF ST LANDS MAIL STATION 105 3900 COMMONWEALTH BLVD TALLAHASSEE, FL 32399-3000	DR. JANET SNYDER MATTHEWS STATE HISTORIC PRESERVATION OFFICE 500 S. BRONOUGH STREET TALLAHASSEE, FL 32399-0250
MS. CINDY CRANICK (16 COPIES) FLORIDA STATE CLEARINGHOUSE 3900 COMMONWEALTH BOULEVARD MAIL STATION 47 TALLAHASSEE, FL 32399-3000	MS. LYNN GRIFFIN FLORIDA COASTAL MANAGEMENT PROGRAM 3900 COMMONWEALTH BOULEVARD MAIL STATION 47 TALLAHASSEE, FL 32399-3000
FLORIDA METROPOLITAN PLANNING ORGANIZATION ADVISORY COUNCIL 20 NORTH MAIN STREET, SUITE 262 BROOKSVILLE, FL 34601	FL FISH & WILDLIFE CONSERVATION COMMISSION OFFICE OF ENVIRONMENTAL SERVICES BRADLEY J. HARTMAN, DIRECTOR 620 S. MERIDIAN ST. TALLAHASSEE, FL 32399-1600
FL FISH & WILDLIFE CONSERVATION COMMISSION OFFICE OF ENVIRONMENTAL SERVICES 255 154TH AVENUE VERO BEACH, FL 32968-9041]	MS MARY BARNWELL SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT 2379 BROAD STREET BROOKSVILLE FL 34609-6899
MS LAUREN MILLIGAN FL DEPT OF ENVIRONMENTAL PROTECTIO OFFICE OF INTERGOV PROGRAMS 3900 COMMONWEALTH BLVD MS 47 TALLAHASSEE FL 32399-3000	MR ALLEN BURDETT FL DEPT OF ENVIRONMENTAL PROTECTIO 3804 COCONUT PALM DR TAMPA FL 33619-8318
MR KENT EDWARDS FL DEPT OF ENVIRONMENTAL PROTECTIO BUREAU OF BEACHES AND COASTAL SYS 3900 COMMONWEALTH BLVD MS 300 TALLAHASSEE FL 32399-3000	MR KEN HUNTINGDON FL DEPT OF ENVIRONMENTAL PROTECTIO 3804 COCONUT PALM DR TAMPA FL 33619-8318
MR MICHAEL CORRIGAN FL DEPT OF ENVIRONMENTAL PROTECTIO BUREAU OF BEACHES AND COASTAL SYS 3900 COMMONWEALTH BLVD MS 300 TALLAHASSEE FL 32399-300	MR BILL HORN FL FISH & WILDLIFE CONSERVATION COM DIV OF MARINE FISHERIES ARTIFICAL REE 620 SOUTH MERIDIAN STREET MAILBOX MF MFM TALLAHASSEE FL 32399-1600

6.4 LIST OF INDIVIDUAL RECEIPENTS

A listing is provided in Table14 of the individuals receiving notification of the proposed study and scheduled public meetings.

TABLE 14 PROPERTY OWNERS/INTERESTED INDIVIDUALS

MS SANDRA B HOYT 4265 CAMELIA DR HERNANDO BEACH FL 34607	MR KEN ALMLI 4554 GULFSTREAM DR HERNANDO BEACH FL 34607
MR MARTIN GAGLIARDI 3218 NASSAU DR HERNANDO BEACH FL 34607	MR FRED CLICK 4320 PARADISE CIRCLE HERNANDO BEACH FL 34607
MR JOSEPH CASCIO 3331 AZALEA DR HERNANDO BEACH FL 34607	A MAURO 3523 CASE COURT HERNANDO BEACH FL 34607
MR PATRICK FRAKES 4487 NEPTUNE DR HERNANDO BEACH FL 34607	MR MEDERIC J BREAU 8957 JENA ROAD SPRING HILL FL 34608
MR AUGUSTINE PERETTI 3178 SEA GRAPE DRIVE HERNANDO BEACH FL 34607	MR KENNETH WARNSTADT P O BOX 594 BROOKSVILLE FL 34605
MS. GLADYS MOORE 4049 HERMOSA BLVD HERNANDO BEACH FL 34607	MR CHARLES MORTON 6991 EAST RICHARD DRIVE WEEKI WACHEE FL 34607
MR JOSEPH GINGRAS 4045 CASA COURT HERNANDO BEACH FL 34607	MS FRANCES BAIRD 4291 SHOAL LINE BLVD HERNANDO BEACH FL 34607
MR JOE MENDOLIA 4446 BAHAMA DR HERNANDO BEACH FL 34607	MR DENNY MOURED 3626 FLAMINGO BLVD SPRING HILL FL 34607
MR JOHN T CALLAGHAN 4482 BIMINI DRIVE HERNANDO BEACH FL 34607	MR CHESTER BRADSHAW 34641 DOGWOOD DRIVE RIDGE MANOR FL 33523
MR DAVID POINTER 3224 GULFWINDS CIRCLE HERNANDO BEACH FL 34607	MS ESTHE FITEWI 4219 CARLOS COURT SPRING HILL FL 34607
MR CHARLES G ROSBECK 5024 CEDARBROOK LANE HERNANDO BEACH FL 34607-2913	MR STEVE BARTOW 4990 CEDARBROOK LAND HERNANDO BEACH FL 34607-2913
MR ART KASPER 3194 GULF COAST DRIVE HERNANDO BEACH FL 34607	MR NORBENT HOLZ 3144 FLAMINGO BLVD HERNANDO BEACH FL 34607
MR THOMAS ASTARITA 4366 YTH ISLE DRIVE HERNANDO BEACH FL 34607	MS MARIE AUSTIN TYRONE 4500 NEPTUNE DRIVE HERNANDO BEACH FL 34607
MR AND MRS GEORGE BAKER 3274 AZALEA DRIVE SPRING HILL FL 34607	MR AND MRS JOE BENNETT 4456 BERMUDA DRIVE HERNANDO BEACH FL 34607

TABLE 14 CONTINUED PROPERTY OWNERS/INTERESTED INDIVIDUALS

MS CYNTHIA BOGERT P O BOX 115 BROOKSVILLE FL 34605	MR BENDAMIN BING 4123 LILY DRIVE HERNANDO BEACH FL 34607
MR FRANK BOGERT P O BOX 115 BROOKSVILLE FL 34605	MS BETTY BREEDEN 316 FLAMINGO BLVD HERNANDO BEACH FL 34607
MR AND MRS CHUCK BROOKINS P O BOX 5932 SPRING HILL 34607	MS DOTTIE BUCKINGHAM P O BOX 295 ARIPEKA FL 34679
MR JOSEPH CARBONE 4242 CAMELIA DRIVE HERNANDO BEACH FL 34607	MS GAIL BURCH 3272 MINNOW CREEK DRIVE HERNANDO BEACH FL 34607
MS RIA E CARBONE 4242 CAMELIA DR HERNANDO BEACH FL 34607	MR CAREY CARLSON 6279 COLONY CIRCLE SPRING HILL FL 34607
MR CARL CARLSON 9 HAIG PLACE SUITE 404 DUNEDIN FL 34698	MR DANIEL CARLSON 4249 TAHITI DRIVE SPRING HILL FL 34607
MR AND MRS RALPH COLARUSSO 4496 BURMUDA DRIVE SPRING HILL FL 34607	MR AND MRS LAWRENCE COVAR 12042 SAPPHIRE DRIVE SPRING HILL FL 34609
MR AND MRS JAMES COVELL P O BOX 294 NOBLETON FL 34661	MR JOHN COX 3241 GULF COAST DRIVE HERNANDO BEACH FL 34607
MS THERESA DAMATO 4109 CULF COAST DRIVE SPING HILL FL 34607	MR WAYNE DOYLE 7215 RIVER COUNTRY DRIVE SPRING HILL FL 34607
MS ANN ELSEBOUGH 3350 MINNOW CREEK DRIVE SPRING HILL FL 34607	MR TRACY EVERETT 8026 CESSNA DRIVE SPRING HILL FL 34606
MR LARRY FERNANDEZ 3482 KINGMAN COURT HERNANDO BEACH FL 34607	MR WILLIAM FERREIRA 4152 ORCHID DRIVE HERNANDO BEACH FL 34607
MR AND MRS BILL FISHER 3472 EAGLE NEST DRIVE HERNANDO BEACH FL 34607	MR JOHN LOY 4490 BERMUDA DRIVE HERNANDO BEACH FL 34607
MR AND MRS DARREL FOSS 3532 EAGLE NEST DRIVE HERNANDO BEACH FL 34607	MS ESTHER FITENI 4219 CARLOS COURT SPRING HILL FL 34607
MR AND MRS MARVIN FRIEDMAN 4115 LILY DRIVE HERNANDO BEACH FL 34607	MR ARMAND GALETO 3497 FLAMINGO BLVD HERNANDO BEACH FL 34607
MR EDWIN GARCIA 13176 ROSEANNA DRIVE SPRING HILL FL 34609	MR AND MRS GARY GARTNER 5316 LYDIA COURT SPRING HILL FL 34608
MR AND MRS MICHAEL GEMMEL 3216 GULFWINDS CIRCLE HERNANDO BEACH FL 34607	MR BERNARD GENTILE 3272 MINNOW CREEK DRIVE HERNANDO BEACH FL 34607

TABLE 14 CONTINUED PROPERTY OWNERS/INTERESTED INDIVIDUALS

MR STEVEN GIESE 4435 CALIENTA STREET HERNANDO BEACH FL 34607	MS DONNAMARIA GOLDEN 4211 SHOAL LINE BLVD SPRING HILL FL 34607
MS SUSAN HARMAN 7182 WESTWIND STREET WEEKI WACHEE FL 34607	D E HARTZELL 4145 ORCHID DRIVE HERNANDO BEACH FL 34607
MR AND MRS HUGH HAYES 4464 SAN JUAN DRIVE HERNANDO BEACH FL 34607	MR ART HIBBARD 4154 LILY DRIVE HERNANDO BEACH FL 34607
MR RAYMOND HIMMERT 4090 ORIENT DRIVE HERNANDO BEACH FL 34607	MR GARY HORTAN 103003 TOPAZ STREET SPRING HILL FL 34607
MR AND MRS WILLIAM JACKSON 3461 CRAPE MYRTLE DRIVE HERNANDO BEACH FL 34607	MR LARRY JOHNSON 4211 SHOAL LINE BLVD HERNANDO BEACH FL 34607
MR CLARK JONES 32440 RIDGE MANOR BLVD RIDGE MANOR FL 33432	MR JOHN KARPISCAK 4137 ORCHID DRIVE HERNANDO BEACH FL 34607
MR ALAN KATZ 3343 JEWFISH DRIVE HERNANDO BEACH FL 34607	MR WYNN KEITH AND MR ROSS KEITH 3187 SANIBEL DRIVE SPRING HILL FL 34607
MR DOUGLAS KINNEY 4010 SHEEPHEAD DRIVE SPRING HILL 34607	MS JOI KNEISS AND MR KEN KNEISS 3190 FLOWERWOOD COURT HERNANDO BEACH FL 34607
MR STEVE KNOWLTON 4281 BISCAYNE DRIVE HERNANDO BEACH FL 34607	MS PAULA KRAYNICK 4251 CAMELIA DRIVE HERNANDO BEACH FL 34607
MR FRED LAMPERT 4463 BAHAMA DRIVE HERNANDO BEACH FL 34607	MS JOAN LENTINI 3399 EAGLE NEST DRIVE HERNANDO BEACH FL 34607
MR NICHOLAS KOMETAS 3425 EAGLE NEST DRIVE HERNANDO BEACH FL 34607	MS BETTY LEHNING 3259 GULF COAST DRIVE SPRING HILL FL 34607
MS DEBORAH LEO AND MR HENRY LEO 431 WATERFALL DRIVE SPRING HILL FL 34608	MS RITA LEO 431 WATERFALL DRIVE SPRING HILL FL 34608
MR ROY LINK 20 NORTH MAIN STREET BROOKSVILLE FL 34601	MR JIM TOMLINSON 4066 AMBERJACK DRIVE SPRING HILL FL 34607
MR DAVID MACCI 3317 ROSE ARBOR HERNANDO BEACH FL 34607	MR BILL MALONE 5318 PARTICIA PLACE SPRING HILL FL 34607
MR TERRY MANN 9268 PENELOPE DRIVE WEEKI WACHEE FL 34613	MR JOE MANNING 4366 8TH ISLE DRIVE HERNANDO BEACH FL 34607
MS CAROL MARTIN AND MR W MARTIN 4330 FLEXER DRIVE HERNANDO BEACH FL 34607	MR GERRY MAURO 3523 CASA COURT HERNANDO BEACH FL 34607

TABLE 14 CONTINUED PROPERTY OWNERS/INTERESTED INDIVIDUALS

MS ELIZABETH MCGUIRE AND MR JOHN MCGUIRE 4124 PINE DALE COURT HERNANDO BEACH FL 34607	MS DIANA MCMULLEN AND MR MARK MCMULLEN 4086 GULF COAST DRIVE HERNANDO BEACH FL 34607
MS LOIS MORETON 4496 BIMINI DRIVE SPRING HILL FL 34607	MR PAUL MORTON SEBRING STREET WEEKI WACHEE FL 34607
MR JOHN OBRIEN 3270 AZALEA DRIVE HERNANDO BEACH FL 34607	MR DANIEL ORBAN AND MRS VERONICA ORBAN 4107 LILY DRIVE SPRING HILL FL 34607
MS JODI PRACHT 316 11TH AVE NE NO3 ST PETERSBURG FL 33701-1926	C PAPPAS 4091 GULF COAST DRIVE SPRING HILL FL 34607
MR RICHARD RADACKY 20 NORTH MAIN STREET BROOKSVILLE FL 34601	MR HORACE REOMILE AND MRS MAGGI REOMILE 3429 GULF COAST DRIVE SPRING HILL FL 34607
MR JOHN REINERS 4286 NEWPORT DRIVE HERNANDO BEACH FL 34607	MR JAMES ST ARNAUD P O BOX 5390 SPRING HILL FL 34611
MR RON SKI 4138 LILY DRIVE HERNANDO BEACH FL 34607	MR PETER STAIR 4139 HOAL LINE DRIVE HERNANDO BEACH FL 34607
MR JAMES STEED 3351 PALOMETA DRIVE HERNANDO BEACH FL 34607	MS JEAN STOLSMARK 3332 GULF WINDS CIRCLE HERNANDO BEACH FL 34607
MS SHARON STEPHENSON 4374 8TH ISLE DRIVE HERNANDO BEACH FL 34607	MR RICHARD STOLSMARK 3332 GULF WINDS CIRCLE HERNANDO BEACH FL 34607
MR AND MRS TOM SWING 3266 MANGROVE DRIVE HERNANDO BEACH FL 34607	MR MICHAEL TAGLIHFERRG 4219 CARLOS COURT SPRING HILL FL 34607
MR AND MRS STEVE TYMOCZKO 4151 LILY DRIVE HERNANDO BEACH FL 34607	MAJOR TYRONE 4500 NEPTUNE DRIVE HERNANDO BEACH FL 34607
MR JIM VERZULLI 4451 JACONA DRIVE SPRING HILL FL 34607	MS JUDI VERZULLI 4451 JACONA DRIVE HERNANDO BEACH FL 34607
MR AND MRS AUGIE WALKER 3192 GULF WINDS CIRCLE HERNANDO BEACH FL 34607	MR LLOYD WARK 3359 FLAMINGO BLVD HERNANDO BEACH FL 34607
MR WILLIAM WALKER 14389 RIALTO AVE BROOKSVILLE FL 34613	MR WILLIAM WARNE 6421 FINANCE AVE SPRING HILL FL 34607
MS WILMA WATSON 3345 POINSETTIA DRIVE HERNANDO BEACH FL 34607	MR PAUL WEEKLEY 17480 NICHOLAS AVE BROOKSVILLE FL 34607

TABLE 14 CONTINUED PROPERTY OWNERS/INTERESTED INDIVIDUALS

MR WALTER WHITE 4279 NEWPORT DRIVE HERNANDO BEACH FL 34607	MS MARGARET WOODWARD 4091 ORIENT DRIVE HERNANDO BEACH FL 34607
MR AND MRS JAMES WOODS 4400 FLEXER DRIVE HERNANDO BEACH FL 34607	MR JOE MILNE 4467 BURMUDA DRIVE HERNANDO BEACH FL 34607
MR THOMAS TALBOTT 4392 TAHITI DRIVE SPRING HILL FL 34607	MS MARLENE GORDON 3305 GULFWINDS CIRCLE HERNANDO BEACH FL 34607
MR REGAN LEWIS 5115 WEST POE AVE TAMPA FL 33629	MR DAVID LEVINE 4077 ORIENT DRIVE HERNANDO BEACH FL 34607
MR RICHARD DYLE 3375 SHOAL LINE BLVD HERNANDO BEACH FL 34607	MR AND MRS ROBERT PFEFFER 3187 AZALEA DRIVE HERNANDO BEACH FL 34607
MR RAY GUSTAFSON 3410 GULFWINDS DRIVE HERNANDO BEACH FL 34607	MS JOAN LENTINI 3399 EAGLE NEST DRIVE HERNANDO BEACH FL 34607
MR GEORG SMOYER 3503 GULFCOAST DRIVE HERNANDO BEACH FL 34607	MS BALERIE SHELTER 3294 MINNOW CREEK DRIVE HERNANDO BEACH FL 34607
MS MILDRED RENFROF 3471 SHEEPHEAD HERNANDO BEACH FL 34607	MR WILLIAM J SLOAN 4553 GULFSTREAM DRIVE HERNANDO BEACH FL 34607
MR STEPHEN BARTON 4990 CRDARBROOK LANE HERNANDO BEACH FL 34607	MR AND MRS KERSHURER 3456 COBIA DRIVE HERNANDO BEACH FL 34607
MR AND MRS DAVID SOBCZAK 4243 TAHITI DRIVE HERNANDO BEACH FL 34607	MR AND MRS DALE VALONE 4266 COLUMBUS DRIVE HERNANDO BEACH FL 34607
MR AND MRS ED LAWSON 4460 FLOUNDER DRIVE HERNANDO BEACH FL 34607	R J GORDON 4207 CARLOS COURT- SPRING HILL FL 34607
MR SCOTT BROWNING 5263 SHOAL LINE DRIVE HERNANDO BEACH FL 34607	MR AND MRS DON MARTIN 3620 EAGLE NEST DRIVE HERNANDO BEACH FL 34607
MR KEN BOARDMAN 3300 SEAGRAPE DRIVE HERNANDO BEACH FL 34607	MR AND MRS PAUL LEVINE 3254 GULFWIND CIRCLE HERNANDO BEACH FL 34607
MR JOHN BATISTA 4207 ORCHID DRIVE HERNANDO BEACH FL 34607	MR JOE AMBROSE 4139 SHOAL LINE HERNANDO BEACH FL 34607
MR NICK CECERA 4295 TRAHITA DRIVE SPRING HILL FL 34607	MR KENNETH SCHMIT 4057 SHEEPHEAD DRIVE SPRING HILL FL 34607
MR GERRY GILBERT 4058 SHEEPHEAD DRIVE SPRING HILL FL 34607	MR AND MRS DON CLARK 4024 BLUEFISH HERNANDO BEACH FL 34607
MR DON HARTZELL 4145 ORCHID DRIVE SPRING HILL FL 34607	MR JOHN STANEK 3519 JEWFISH DRIVE HERNANDO BEACH FL 34607

TABLE 14 CONTINUED PROPERTY OWNERS/INTERESTED INDIVIDUALS

MR MEL SWEAT 3327 CROAKER DRIVE HERNANDO BEACH FL 34607	MR JIM TAYLOR 3479 TRIGGERFISH HERNANDO BEACH FL 34607
MR LEWIS JOHNSON 3504 SHEEPHEAD DR SPRING HILL FL 34607	MR JIM RICE 3048 TRIGGERFISH DRIVE HERNANDO BEACH FL 34607
MR JOHN KARPISCAK 4137 ORCHID DRIVE HERNANDO BEACH FL 34607	MR RONALD EDGERTON 4025 CASA COURT HERNANDO BEACH FL 34607
MR LARRY BOHN AND MRS CAROL BOHN 4168 ORCHID DRIVE HERNANDO BEACH FL 34607	MR ROD ANDERSON 3359 GULF COAST DRIVE HERNANDO BEACH FL 34607
MS ANN EISEBAUGH 3350 MINNOW CREEK HERNANDO BEACH FL 34607	MR JOHN CALLAGHAN 4367 TAHITI DRIVE HERNANDO BEACH FL 34607
MR DON FLETCHAR 1040 ISLAND AVE TARPON SPRINGS FL 34689	MR THOMAS BARB 3303 FLAMINGO BLVD SPRING HILL FL 34607
MR AND MRS ART KASPER 3194 GULF COAST DRIVE SPRING HILL FL 34607	MR AND MRS CLIFF BELL 4115 LILY DRIVE HERNANDO BEACH FL 34607
MR AND MRS LEN SINISGALLI 1304 STALLINGS AVE SPRING HILL FL 34607	MR AND MRS GARY DELICINTO 3416 CROAKER DRIVE HERNANDO BEACH FL 34607
MR RAY ZINKIEWICZ 13826 COOPER ROAD SPRING HILL FL 34607	MR CLARK JONES 4024 GULF COAST DRIVE HERNANDO BEACH FL 34607

6.5 COMMENTS RECEIVED AND RESPONSE

Comments received were mostly supportive of the proposed action. However, some commented on possible environmental impacts that would occur to existing seagrasses and sponges. Some commenters communicated monies could be better spent on roads and other type infrastructures. Other communicated safety concerns for those navigating the existing channel with numerous blind curves. A predominance of the commenters felt the dredged sand should be use to create a public beach north of existing spoils adjacent the main channel. Comments received from the public scoping letter and public meetings can be located in Appendix E, Correspondence and Appendix F, Local Cooperation of the Detailed Project Report, respectively.

7 REFERENCES

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Internet Sites:

Florida Fish and Wildlife Conservation Commission http://marinefisheries http://marinefisheries.org/ar/index.htm

Palm Beach County, Department of Environmental Protection http://www.pbcgov.com/erm/divisions/enhancement/habitat/artificial_reef/

South Carolina Department of Natural Resources http://www.dnr.state.sc.us/marine/pub/seascience/artreef.htm

The Fishline http://w3page.com/fishline/links.php; Fishline,

APPENDIX A - SECTION 404(B) EVALUATION

SECTION 404(b) EVALUATION

HERNANDO BEACH
NAVIGATION CHANNEL IMPROVEMENTS
LITTLE LAKE DISPOSAL SITE and ARTIFICIAL REEF SITE
HERNANDO BEACH, FLORIDA

I. Project Authority, Location, Purpose, and General Descriptions.

a. **Authority**.. In 1994, the Hernando Beach Port Authority requested the Corps conduct a study of the Hernando Beach Navigation Channel for possible channel improvements. Initiation of the study occurred upon receipt of Congressional funding in the Appropriations Act of 1997 for the Continuing Authority Section 107 Program.

b. **Location**. Hernando Beach is a coastal community located on the north-central Gulf Coast exactly 62.1 miles north of Tampa and 90 miles west of Orlando, on the southern terminus of the Big Ben coastline of the State, in Hernando Beach, Hernando County, Florida.

c. **Project Purpose and General Project Description**. The project purpose is to provide an improved navigation channel that meets commercial demands and safety requirements. The proposal would 1) lengthen the existing 12,700-foot linear channel to 20,500 feet (to the 6-foot Gulf contour past the Watts's tower, 2) create widenerss/or flares north and south of the main channel at the eastern end, 3) create a 175-foot wide turning basin south of the main channel at the eastern end, 4) widen the bottom cross-section to 80 feet, and 5) increase the channel's bottom depth to a design -6 feet mean lower low water (mllw) [2 feet overdepth not included (1-foot required and 1-foot allowable)]. The total volume of dredged material 333,000 cubic yards. This material would include 206,000 cubic yards of rock, 124,000 cubic yards of sand, and 3,000 cubic yards assemblage of peat, clay and silt.

The project also proposes beneficial use of the dredged material by placing the material over 48 acres of offshore bottom gulf substrate, to achieve hardbottom habitat towards fishery enhancement and diversity. A Hernando County owned and identified artificial reef located a maximum 19 nautical miles from the shoreline of Hernando County would receive the dredged material. This site identified as the Richardson Reef, would receive either 30 acres or 48 acres of material (rock only 30 acres and total dredged material 48 acres). The material would be placed to achieve a maximum height of 5 feet mean mllw, with a base of 80 feet and a crown of 60 feet. Waterway clearance would be 13 feet mllw in some places and 15 feet mllw in other areas; waterway depths are 15 and 18 feet mllw

d. **General Description of Dredged or Fill Material.**

(1) **General Characteristics of Material.** The upper layer of soil is formed by undifferentiated sand and clay overlaying Tampa limestone, with interbedded sands and clays forming a thickness of 250 feet in some area. The Tampa limestone is white to gray, sandy and fossiliferous. Thickness is erratic due to irregular erosional surfaces. However, the lower part of the formation is harder, denser, and less fossiliferous than the upper layer. Soils in the immediate project area are primarily unconsolidated sediments and limerock. (see Appendix B, Engineering Geotechnical Information of the Detailed Project Report).

(2) **Quantity of Material.** The project proposes removal of 206,000 cubic yards of rock, 124,000 cubic yards of sand, and 3,000 cubic yards assemblage of peat, clay and silt.

(3) **Source of Material.** Dredging the main channel to an 80-foot width and a -8-foot depth (2-feet overdepth [1-foot required and 1-foot allowable]) would yield a total volume of 333,000 cubic yards of material. About 60 percent of the material would be rock from the main channel, 39 percent sand, and 1 percent clay, peat, and other material. Dredge volumes also include material to be secured from the creation of a 150-to 175-foot wideners/turning basin southeast of the main channel and extension of the main channel 7,700 feet westerly to the 6-foot contour past the Watt's Tower.

e. **Description of the Discharge/Restoration Sites.** Located in the Gulf of Mexico approximately 16.4 miles (minimum distance 13.4 miles one way) west of Hernando Beach. The dredged material placement site is an existing reef proposed for expansion and known as the Richardson Reef. The waterway depth at this location varies from 18 feet to 20 feet mean lower low water. Receiving permit authorization in 1978, the reef was eventually deployed December 31, 1989 with surplus military tanks (per permit authorization) and bridge spans (see Appendix D, Supplemental Information of the Detailed Project Report).

(1) **Size of Discharge/Restoration Site.** Approximately 333,000 cy of material (limerock, sand, and other material) is proposed to expand an existing artificial reef by 48 acres. The limerock diameters would vary from several inches to 2 feet or larger.

(2) **Type of Site**. Material placement is proposed for a sand and limerock bottom surface. This material would expand an existing manmade artificial reef that was originally created with 36-inch concrete culverts in about 18 feet of water, in the Gulf of Mexico, approximately in 17 miles northwest of the Hernando Beach Water Tower.

(3) **Type of Habitat**. Limerock is found several inches below a firm sand layer. No live bottom communities (i.e., sponges, coral, algae, or seagrass) are known to exist within the area proposed for deployment of reef material. The vicinity may contain some rock outcrop, sponges, algae, or benthic populations, given the proximity to the existing artificial reef. Proper placement of the material would not adversely impact any established resources. The low profile rock outcrop would provide habitat for food and game fish species, namely snapper and grouper, sea bass and flounder. Benefits would also be received that increase the attraction of scuba divers to the area.

f. **Timing and Duration of Discharge**. The offshore reef placement would consist primarily of limerock, approximately 60 percent of the dredged material. Assuming a placement area of 6 feet by 1 foot by 1 foot, it is anticipated that a total 160 days would be required to begin and end placement of material at the artificial reef site (vessel downtime also included).

It anticipated that channel maintenance would be required every 23 years, given the physical dynamics of the area. Channel maintenance as required would remove from 23,000 to 27,000 cubic yards of material (sediments only). Future material disposal is proposed for existing spoil mounds north of the main channel and adjacent to Coon Key Point. Material disposal would expand these existing islands and would create the proposed Pederson Park. (see **Figure 1**, Pederson Park Location Map

f. **Description of Disposal Method**. Mechanical (clamshell) dredge is proposed to excavate the anticipated material with transport to the Richardson Reef site by barge.

Hydraulic pipeline is anticipated for placement of future dredged volumes on the proposed Pederson Park. This method would also be the preferred mean of discharge and disposal.

FIGURE 1. PEDERSON PARK LOCATION MAP

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. Material would be placed to a height of 5 feet within water depths varying from 18 to 20 feet mllw. The anticipated clearance would be from 13 to 15 feet at mllw. The limerock would be placed in rows with a base width of 80 feet and a crown width of 50 feet.

(2) Sediment Type. Natural limerock, beach quality sand, a minimal amount of silt (clay and organics) would be discharged at the artificial reef site.

(3) Dredge/Fill Material Movement. Some movement of material is anticipated, this movement should be slight and non-impacting to the surrounding area or vessel navigating the area.

(4) Physical Effects on Benthos. Placement of dredged material over time would have beneficial effects on demersal species (living on or near the bottom and feeding on benthic organisms) and benthic organisms (lying on or living near or on the bottom). This area would realize a 48-acre substrate increase for the attachment of such species that are common to rock outcrop areas and the beneficial components provided to the commercial and recreational fishing industries.

b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. No adverse effects should result from the proposed action.

(2) Current Patterns and Circulation. The project action area should not have a detectable effect on waterway patterns and circulation.

(3) Normal Water Level Fluctuations and Salinity Gradients. No adverse impact would result from the proposed discharge

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. No adverse effects or changes are anticipated. The receiving substrate is sand and limerock. Some turbidity generated from the project actions, however, it's anticipated this occurrence would be minimal and non-impacting to existing resources that may be within the vicinity.

(2) **Effects on the Chemical and Physical Properties of the Water Column.**

(a) **Light Penetration.** The proposed discharge would have no adverse impact on light penetration currently received in this area of the gulf.

(b) **Dissolved Oxygen.** About 48 acres would receive 333,000 cubic yards of dredged material to expand an existing reef containing concrete culverts. Project action should not adversely impact dissolved oxygen level.

(c) **Toxic Metals, Organics, and Pathogens.** The project would not contain any toxic metal, organics, or harmful pathogens.

(d) **Aesthetics.** No adverse effects would result to this value; a submerged substrate would receive the proposed discharge.

(e) **Effects on Biota.** The area proposed to receive material for reef expansion is not known to contain attaching flora, epifauna organisms (live on the sea floor), infaunal organisms (burrow into the sediment on the sea floor), or sessile organisms (permanently attached). Adverse effects to this value are not anticipated.

(f) **Primary Productivity and Photosynthesis.** Project related activities would have no adverse effect on these values. Successful established of the reef should realize an increase in attaching flora/fauna and vertebrates/invertebrates.

(g) **Suspension/Filter Feeders.** No adverse effects would result to these values. The proposed reef expansion should eventually colonize with such species as sponges, corals, flatworms, bryozoans, clams, scallops, crabs, barnacles, shrimp, lobster, and starfish, in addition to, predator and scavenger species.

d. **Contaminant Determinations.** The area proposed for placement of the reef material is approximately 16 miles from the shoreline of Hernando Beach. This area has been used as an artificial reef site since the late 80's. The likelihood is small that any contaminants occur in the area.

e. **Aquatic Ecosystem and Organism Determinations.**

(1) **Effects on Plankton.** Location of limerock at this location should have a substantial impact on attracting the small plants and animals that drift in Gulf waters. The increased presence of such organisms would add beneficial components to the marine food chain and the recreational and commercial fishing industries dependent on such sites.

(2) **Effects on Benthos**. Positive increases are anticipated to permanently attached or immobile forms of benthos (i.e., sponges, corals, oysters) and burrowing animals (e.g. worms).

(3) **Effects on Nekton**. The reef material would not be deployed in a manner to adversely impact species that are capable of relocating during material placement.

(4) **Effects on the Aquatic Food Web**. No adverse effects are anticipated. Substantial and positive benefits should be added to the aquatic and marine food web.

(5) **Effects on Special Aquatic Sites**. Project action proposes no adverse effects to any known aquatic sites in this area.

(6) **Hardground and Coral Reef Communities**. No adverse effects are anticipated. Successful establishment of the reef with vertebrates/invertebrates, micro/macro organisms would provide these values to an existing sterile environment.

(7) **Sanctuaries and Refuges**. There are no known sanctuaries or refuges in this area; the project proposes no adverse affects to these resources

(8) **Endangered and Threatened Species**. The Corps identified the endangered Florida manatee (*Trichechus manatus*), threatened loggerhead turtle (*Caretta caretta*), endangered green (*Chelonia mydas)*, leatherback (*Dermochelys coriacea)*, hawksbill (*Eretmochelys imbricata)* and Kemp's ridley (*Lepidochelys kempii)* turtles as likely to occur in the project. Sea turtle nesting has not been documented as occurring within the boundaries of Hernando County (USFWS, 1997). There is no designated critical habitat in the area. It's probable the identified sea turtle species may occur within the waters earmarked for placement of reef material. Coordination would be initiated with National Marine Fishery Service (NMFS) via this document. Recommendations received from the NMFS (as related to protection of the species) would be placed in the project's plans and specifications (specs). This action would ensure that deployment of reef materials does not adversely affect the continued survival of the species. The project's plans and specs would also include an observer for the sea turtle and manatee. The observer would have the authority to halt project action should manatees or sea turtles come within 50 yards of construction. Specific language regarding manatee and sea turtle precautions can be found in Appendix

(9) **Other Wildlife**. There are no other known wildlife in the reef expansion area that warrant precautionary measures (i.e., plan and specs conditions and onboard observer).

(10) Actions to Minimize Impacts. A minimization of project was not required. The project area is a sterile environment in need of enhancement to attract reef dwelling organisms and fishery species.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. Approximately 60 percent of the dredged material is limerock, 39 percent sand, and 1 percent clay, peat, and other material. it's anticipated the mixing zone would be confined to the discharge site. No adverse effects should result, given the confining dimensions of the project area.

(2) Determination of Compliance with Applicable Water Quality Standards. The proposed action would be in compliance with existing State water quality standards. All necessary State permits would be obtained prior to construction and material discharge.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. The project's action would have no direct or indirect adverse effects on municipal or private water supplies.

(b) Recreational and Commercial Fisheries. It is anticipated that within months noticeable increases should occur to the area's fishing opportunities

(c) Water Related Recreation. No adverse effects are anticipated. Approximately 48 acres of reef habitat would be created by expanding an existing manmade reef. The reef would eventual provide fishing opportunities for commercial fishermen and recreational anglers, in addition to, an aesthetic views for scuba divers. Long-term values would be received to this value.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves.

(1) Artificial Reef Site. Project actions propose no adverse effects to these values.

(2) Dredge Material Disposal Site/Pederson Park. Future placement of dredged material is proposed at the identified park. However, no adverse affects should occur to any existing resources

g. **Determination of Cumulative Effects on the Aquatic Ecosystem**. The project's action does not propose any adverse cumulative effects. Placement of reef material in this area would provide long-term positive benefits. Conversely, reef creation or expansion would provide food, shelter, protection, and spawning areas for hundreds of species of fish and other marine organisms.

h. **Determination of Secondary Effects on the Aquatic Ecosystem**. The project's action proposed no adverse secondary effects. Beneficial long-term affects of the project would reduced the manmade pressure placed on natural reef communities and provide an alternative site for scuba divers and anglers to use.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

a. No significant adaptations of the guidelines were made relative to this evaluation.

b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.

c. After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The proposed action would not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

e. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

f. On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the requirements of these guidelines.

APPENDIX B - COASTAL ZONE MANAGEMENT CONSISTENCY

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM
FEDERAL CONSISTENCY EVALUATION PROCEDURES
HERNANDO BEACH
NAVIGATION STUDY
HERNANDO BEACH, FLORIDA

1. Chapter 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The purpose of the proposed action is to assist in the continued functional capability of the navigation project at Hernando Beach and to enhance navigational safety in the channel. The proposed action will have no effect on natural shoreline processes and is consistent with the intent of this chapter.

2. Chapters 163(part II), 186 and 187, County, Municipal, State and Regional Planning. These chapters establish the Local Comprehensive Plans, the Strategic Regional Policy Plans, and the State Comprehensive Plan (SCP). The SCP sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed action has been coordinated with various Federal, State and local agencies during the planning process. The project meets the primary goal of the State Comprehensive Plan through preservation and protection of the shorefront development and infrastructure. The proposed action will be consistent with the intent of these chapters.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a State Emergency Management Agency, with the authority to provide for the common defense, to protect the public peace, health and safety, and to preserve the lives and property of the people of Florida.

Response: The proposed action will improve navigational safety for vessels entering and leaving the Hernando Beach Development, and thus will be consistent with the intent of this chapter.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The proposed action will attempt to avoid to the fullest extent possible state managed submerged lands and resources within state lands. The project has been coordinated with appropriate State agencies and all required permit will be obtained prior to construction. The proposed action will be consistent with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Property that will be affected by the proposed action is maintained in pubic ownership, these chapters do not apply.

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The project action proposes no direct adverse effects to these resources. Future components of the project that would be undertaken by the local sponsor would place sand material on State land for creation of a public park. This action will not adversely impact State managed parks or preserves, and is considered consistent with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The project has been coordinated with the State Historic Preservation Officer (SHPO). Historic Property investigations were conducted in the project area in accordance to the procedures outlined in this chapter. Archival research and historic assessment and remote sensing and terrestrial surveys of the proposed entrance channel and upland disposal areas were also conducted. Phase II survey and testing is required to evaluate a prehistoric site, 8He403, in the channel and approximately 49 magnetic anomalies. These investigations will determine National Register significance. Coordination with the State Historic Preservation Office will continue to evaluate the effects of the project and will be consistent with this chapter.

8. Chapter 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The project action will remove navigation delays experienced by commercial fishing vessels. Secondary project components improves channel navigation and Gulf access for recreational boaters. The proposed action will be consistent with this chapter.

9. Chapters 334 and 339, Public Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: The proposed action will not affect public transportation; therefore, these chapters do not apply.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment, to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters, to issue licenses for the taking and processing products of fisheries, to secure and maintain statistical records of the catch of each such species, and to conduct scientific, economic, and other studies and research.

Response: Channel improvements as proposed will not adversely affect the listed resources and related functions, and as such, the project is consistent with the goals and objectives of this chapter.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project proposes no adverse affects to these resources and therefore is consistent with the intent of this chapter.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: The project proposes no impacts to water resources as identified in this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The proposed action does not involve the transfer, storage, or transportation of pollutants. Project action will require conditions placed in the plans and specifications as related to the inadvertent discharge and cleanup of pollutants such as vessel fuel. The proposed action will comply with this chapter.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This chapter is not applicable to the proposed action.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development. This chapter also deals with the Area of Critical State Concern program and the Coastal Infrastructure Policy.

Response: The project action has considered the various aspects of this chapter. Project coordination was established with the appropriate regional planning council and will be consistent with the intent of this chapter.

16. Chapters 381 (selected subsections on on-site sewage treatment and disposal systems) and 388 (Mosquito/Arthropod Control). Chapter 388 provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: These chapters are not applicable to the proposed action.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Protection.

Response: Project actions will be reviewed by the appropriate State resource agencies including the Florida Department of Environmental Protection. The appropriate State permit will be obtained; project actions will be consistent with this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: Project action will not impact the goal and objective of this chapter. This chapter does not apply.

APPENDIX C: SUPPLEMENTAL INFORMATION

STANDARD PROTECTION GUIDELINES (EXCERPTS)
FOR THREATENED AND ENDANGERED SPECIES
HERNANDO BEACH
NAVIGATION STUDY
HERNANDO COUNTY, FLORIDA

The Contractor shall instruct all personnel associated with the project of the potential presence of manatees, and sea turtles in the area, and the need to avoid collisions with and harming these animals. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, or sea turtles which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act. The Contractor shall be held responsible for any manatee or sea turtle harmed, harassed, or killed as a result of construction activities.

In the event that a threatened or endangered species is harmed as a result of construction activities, the Contractor shall cease all work and notify the Contracting Officer.

a. Siltation Barriers: If siltation barriers are used, they shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to or exit from essential habitat.

b. Special Operating Conditions:

(1) All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom, and vessels shall follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits. Mooring bumpers shall be placed on all barges, tugs, and similar large vessels wherever and whenever there is a potential for manatees to be crushed between two moored vessels. The bumpers shall provide a minimum stand-off distance of four feet.

(2) If a manatee(s) is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to

ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease within the waterway to ensure protection of the manatee. Construction activities shall not resume until the manatee has departed the project area.

(3) Dredging operations shall cease if 3 turtles are taken until the Contracting Officer notifies the Contractor to resume dredging.

c. Manatee Monitoring (Clamshell Only): During clamshell dredging operations, a dedicated observer shall monitor for the presence of manatees. The dedicated observer shall have experience in manatee observation and be equipped with polarized sunglasses to aid in observing. If manatees are present, the observer shall document all activities with the use of a video camera with the capabilities of video taping at night. The videotape shall have date/time signature and record all manatee movements in the construction area and note any reactions to turbidity, sound, and light. Nighttime lighting of waters within and adjacent to the work area shall be illuminated, using shielded or low-pressure sodium-type lights, to a degree that allows the dedicated observer to sight any manatee on the surface within 200 feet of the operation. The dredge operator shall gravity-release the clamshell bucket only at the water surface, and only after confirmation that there are no manatees within the safety distance identified in the standard construction conditions. The Contractor shall forward 3 copies to Dr. Loren Mason, Chief, Environmental Branch, P.O. Box 4970, Jacksonville, Florida, 32232-0019, within 10 days of completion of the dredging.

d. Manatee Signs: Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8-1/2" x 11" reading, "CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA." In the absence of a vessel, a temporary 3' x 4' sign reading "CAUTION: MANATEE AREA" shall be posted adjacent to the issued construction permit. A second temporary sign measuring 8-1/2" x 11" reading "CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION" shall be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction. Sample Manatee Caution Signs are appended to the end of this Section.

Endangered Species Observers (Hopper Dredge Only)

During dredging operations, an observer approved by the National Marine Fisheries Service (NMFS) for sea turtles and whales shall be aboard to monitor for the presence of the species. During transit to and from the disposal area, the observer shall monitor from the bridge during daylight hours for the presence of endangered species, especially the right whale, during the period December through March. During dredging operations, the observer shall monitor the inflow screening for turtles and/or turtle parts.

a. Observation Sheets: The results of the monitoring shall be recorded on the appropriate observation sheet. An observation sheet shall be completed for each dredging cycle whether or not sea turtle or sea turtle parts are present. Sample observation sheets are appended to the end of this Section.

b. Endangered Species Observer(s): NMFS-approved firms shall provide and manage the endangered species observer(s). A list of acceptable firms can be obtained by contacting NMFS Chief of Office of Protective Species in St. Petersburg, Florida at 727-570-5312. The trained observer(s) shall require quarters on board the dredge.

Manatee and Sea Turtle Sighting Reports

Any take concerning a manatee, sea turtle, or whale or sighting of any injured or incapacitated manatees, sea turtles, or whales shall be reported immediately to the Corps of Engineers. The order of contact within the Corps of Engineers shall be as follows:

Order of Contact of Corps Personnel for Dredging Contractor to Report Endangered Species Death or Injury

Title	Telephone Number Work Hours	After Hours
Corps, Inspector	On site	Lodging Location
Mr. [ ], [Area][Resident][Antilles] Engineer, [ ] (CESAJ-[ ]-[ ])	[ ]	To be Provided
Dr. Loren Mason, Chief, Environmental Branch, Planning Division (CESAJ-PD-E)	904-232-1010	To be Provided
Mr. Charles McGehee, Chief, Construction Branch, Construction-Operations Division (CESAJ-CO-C)	904-232-1122	To be Provided
Mr. Gordon M. Butler, Jr., Chief, Construction-Operations Division (CESAJ-CO)	904-232-3765	To be Provided

A copy of the incidental take report shall be provided within 24 hours of the incident. The Contractor shall also immediately report any collision with and/or injury to a manatee to the Florida Marine Patrol "Manatee Hotline" 1-800-342-5367 as well as the U.S. Fish and Wildlife Service, [Jacksonville Field Station 904-232-2580 for North Florida] [Vero Beach Field Office 561-562-3909 for South Florida] [Boqueron Field Office 787-851-7273 for Puerto Rico].

Disposition of Turtles or Turtle Parts

Positively identified turtle parts shall be disposed of in accordance with the direction of the Contracting Officer. Turtle parts which cannot be positively identified on board the dredge or barge(s) shall be preserved by the observer(s) for later identification. Observer(s) shall measure, weigh, tag, and release any uninjured turtles incidentally taken by the dredge. Observer(s) (or their authorized representative) shall transport, as soon as possible, any injured turtles to a rehabilitation facility such as Sea World at Orlando, Florida.

Report Submission

The Contractor shall maintain a log detailing all incidents, including sightings, collisions with, injuries, or killing of manatees, sea turtles, or whales occurring during the contract period. The data shall be recorded on forms provided by the Contracting Officer (sample forms are appended to the end of this Section). All data in original form shall be forwarded directly to Dr. Loren Mason, Chief, Environmental Branch, P. O. Box 4970, Jacksonville, Florida, 32232-0019, within 10 days of collection and copies of the data shall be supplied to the

Contracting Officer. Following project completion, a report summarizing the above incidents and sightings shall be submitted to the following:

Florida Fish and Wildlife Conservation Commission
Bureau of Protected Species Management
620 South Meridian Street
Tallahassee, Florida 32399-1600

Chief, Environmental Branch
U.S. Army Corps of Engineers (CESAJ-PD-E)
P.O. Box 4970
Jacksonville, Florida 32232-0019

[Area][Resident][Antilles] Engineer, [ ]
U.S Army Corps of Engineers (CESAJ-[ ]-[ ]
[ ]
[ ]

[U.S. Fish and Wildlife Service
6620 Southpoint Drive South, Suite 310
Jacksonville, Florida 32216-0912]

[U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960-3559]

[U.S. Fish and Wildlife Service
P. O. Box 491
Boqueron, Puerto Rico 00622-0491]

[National Marine Fisheries Service
Protected Species Management Branch
9721 Executive Center Drive
St. Petersburg, Florida 33702]

Hopper Dredge Equipment

Hopper dredge drag heads shall be equipped with rigid sea turtle deflectors which are rigidly attached. No dredging shall be performed by a hopper dredge without a turtle deflector device that has been approved by the Contracting Officer. (Sample Turtle Deflector Design Details are appended to the end of this Section.)

a. Deflector Design:

(1) The leading vee-shaped portion of the deflector shall have an included angle of less than 90 degrees. Internal reinforcement shall be installed in the deflector to prevent structural failure of the device. The leading edge of the deflector shall be designed to have a plowing effect of at least 6" depth when the drag head is being operated. Appropriate instrumentation or indicator shall be used and kept in proper calibration to insure the critical "approach angle". (Information Only Note: The design "approach angle" or the angle of lower drag head pipe relative to the average sediment plane is very important to the proper operation of a deflector. If the lower drag head pipe angle in actual dredging conditions varies tremendously from the design angle of approach used in the development of the deflector, the 6" plowing effect does not occur. Therefore, every effort should be made to insure this design "approach angle" is maintained with the lower drag pipe.)

(2) If adjustable depth deflectors are installed, they shall be rigidly attached to the drag head using either a hinged aft attachment point or an aft trunnion attachment point in association with an adjustable pin front attachment point or cable front attachment point with a stop set to obtain the 6" plowing effect. This arrangement allows fine-tuning the 6" plowing effect for varying depths. After the deflector is properly adjusted there shall be NO openings between the deflector and the drag head that are more than 4" by 4".

b. In Flow Basket Design:

(1) The Contractor shall install baskets or screening over the hopper inflow(s) with no greater than 4" x 4" openings. The method selected shall depend on the construction of the dredge used and shall be approved by the Contracting Officer prior to commencement of dredging. The screening shall provide 100% screening of the hopper inflow(s). The screens and/or baskets shall remain in place throughout the performance of the work.

(2) The Contractor shall install and maintain floodlights suitable for illumination of the baskets or screening to allow the observer to safely monitor the hopper basket(s) during non-daylight hours or other periods of poor visibility. Safe access shall be provided to the inflow baskets or screens to allow the observer to inspect for turtles, turtle parts or damage.

c. Hopper Dredge Operation:

(1) The Contractor shall operate the hopper dredge to minimize the possibility of taking sea turtles and to comply with the requirements stated in the Incidental Take Statement provided by the National Marine Fisheries Service in their Biological Opinion.

(2) The turtle deflector device and inflow screens shall be maintained in operational condition for the entire dredging operation.

(3) When initiating dredging, suction through the drag heads shall be allowed just long enough to prime the pumps, then the drag heads must be placed firmly on the bottom. When lifting the drag heads from the bottom, suction through the drag heads shall be allowed just long enough to clear the lines, and then must cease. Pumping water through the drag heads shall cease while maneuvering or during travel to/from the disposal area. (Information Only Note: Optimal suction pipe densities and velocities occur when the deflector is operated properly. If the required dredging section includes compacted fine sands or stiff clays, a properly configured arrangement of teeth may enhance dredge efficiency which reduces total dredging hours and "turtle takes." The operation of a drag head with teeth must be monitored for each dredged section to insure that excessive material is not forced into the suction line. When excess high-density material enters the suction line, suction velocities drop to extremely low levels causing conditions for plugging of the suction pipe. Dredge operators should configure and operate their equipment to eliminate all low-level suction velocities. Pipe plugging in the past was easily corrected, when low suction velocities occurred, by raising the drag head off the bottom until the suction velocities increased to an appropriate level. Pipe plugging cannot be corrected by raising the drag head off the bottom. Arrangements of teeth and/or the reconfiguration of teeth should be made during the dredging process to optimize the suction velocities.)

(4) Raising the drag head off the bottom to increase suction velocities is not acceptable. The primary adjustment for providing additional mixing water to the suction line should be through water ports. To insure that suction velocities do not drop below appropriate levels, the Contractor's personnel shall monitor production meters throughout the job and adjust primarily the number and opening sizes of water ports. Water port openings on top of the drag head or on raised stand pipes above the drag head shall be screened before they are utilized on the dredging project. If a dredge section includes sandy shoals on one end of a tract line and mud sediments on the other end of the tract line, the Contractor shall adjust the equipment to eliminate drag head pick-ups to clear the suction line.

(5) Near the completion of each payment section, the Contractor shall perform sufficient surveys to accurately depict those portions of the acceptance section requiring cleanup. The Contractor shall keep the drag head buried a minimum of 6 inches in the sediment at all times. Although the over depth prism is not the required dredging prism, the Contractor shall achieve the required prism by removing the material from the allowable over depth prism.

(6) During turning operations the pumps must either be shut off or reduced in speed to the point where no suction velocity or vacuum exists.

(7) These operational procedures are intended to stress the importance of balancing the suction pipe densities and velocities in order to keep from taking sea turtles. The Contractor shall develop a written operational plan to minimize turtle takes and submit it as part of the Environmental Protection Plan.

The Contractor must comply with all requirements of this specification and the Contractor's accepted Environmental Protection Plan. The contents of this specification and the Contractor's Environmental Protection Plan shall be shared with all applicable crew members of the hopper dredge.

Recording Charts for Hopper Dredge(s)

All hopper dredge(s) shall be equipped with recording devices for each drag head that capture real time, drag head elevation, slurry density, and at least two of the following: Pump(s) slurry velocity measured at the output side, pump(s) vacuum, and/or pump(s) RPM. The Contractor shall record continuous real time positioning of the dredge, by plot or electronic means, during the entire dredging cycle

including dredging area and disposal area. Dredge location accuracy shall meet the requirements of the latest version of COE EM 1110-1-1003. A copy of the EM can be downloaded from the following web site: http://www.usace.army.mil/inet/usace-docs/eng-manuals/em.htm. The recording system shall be capable of capturing data at variable intervals but with a frequency of not less than every 60 seconds. All data shall be time correlated to a 24 hour clock and the recording system shall include a method of daily evaluation of the data collected. Data shall be furnished to the Contracting Officer for each day's operation on a daily basis. A written plan of the method the Contractor intends to use in order to satisfy these requirements shall be included with the Contractor's Quality Control Plan.

Sea Turtle Risk Assessment (For Hopper Dredges Only)

a. Sea Turtle Trawling and Relocation: A sea turtle risk assessment survey shall be conducted following the take of three sea turtles and continue until directed by the Contracting Officer. The results of each trawl shall be recorded on Sea Turtle Trawling Report appended to the end of this Section. A final report shall be prepared and submitted to the Contracting Officer prior to re-commencement of dredging summarizing the results of the survey (with all forms and including total trawling times, number of trawls and number of captures). Any turtles captured during the survey shall be measured and tagged in accordance with standard biological sampling procedures with sampling data recorded on Sea Turtle Tagging and Relocation Report appended to the end of this Section. Any captured sea turtles shall be relocated south of the work area at least 3 miles from the location recorded on the Sea Turtle Tagging and Relocation Report form.

b. Sea Turtle Trawling Procedures: An approved sea turtle trawling and relocation supervisor shall provide researchers and nets to capture and relocate sea turtles, shall conduct Sea Turtle Risk Assessment Survey, and shall conduct any initiated sea turtle trawling. Turtles shall be captured with trawl nets to determine their relative abundance in the channel during dredging. Methods and equipment shall be standardized including data sheets, nets, trawling direction to tide, length of station, length of tow, and number of tows per station. Data on each tow shall be recorded using Sea Turtle Trawling Report appended to end of this Section. The trawler shall be equipped with two 60-foot nets constructed from 8-inch mesh (stretch) fitted with mud rollers and flats as specified in Turtle Trawl Nets Specifications appended to the end of this Section. Paired net tows shall be made for 10 to 12 hours per day or night. Trawling shall be conducted with the tidal flow using repetitive 15-30 minute (total time) tows in the channel. Tows shall be made in the center, green and red sides of the channel such that the total width of the channel bottom is sampled. Positions at the beginning and end of each tow

shall be determined from GPS Positioning equipment. Tow speed shall be recorded at the approximate midpoint of each tow. Refer to COE EM 1110-1-1003, paragraph 5.3 and Table 5-1, for acceptable GPS criteria.

c. Water Quality and Physical Measurements: Water temperature measurements shall be taken at the water surface each day using a laboratory thermometer. Weather conditions shall be recorded from visual observations and instruments on the trawler. Weather conditions, air temperature, wind velocity and direction, sea state-wave height, and precipitation shall be recorded on the Sea Turtle Trawling Report appended to the end of this Section. High and low tides shall be recorded.

d. Initiation of Trawling: Initiate trawling if three turtles are taken. The Contractor must initiate trawling and relocation activity in the dredging area within 8 hours of the occurrence of the take. Trawling shall continue until suspended by the Contracting Officer.

e. Approved Trawling Supervisor: Trawling shall be conducted under the supervision of a biologist approved by the NMFS. A letter of approval from NMFS shall be provided to the Contracting Officer prior to commencement of trawling.

f. Turtle Excluder Devices: Approval for trawling for sea turtles without Turtle Excluder Devices (TEDs) must be obtained from NMFS. Approval for capture and relocation of sea turtles must be obtained from the [Florida Fish and Wildlife Conservation Commission (FF&WCC)] [Puerto Rico Department of Natural Environmental Resources (PRDNER)]. Approvals must be submitted to the Contracting Officer prior to trawling.

g. Report Submission: Following completion of the project, a copy of the Contractor's log regarding sea turtles shall be forwarded to the Dr. Loren Mason, Chief, Environmental Branch and the [Area] [Resident] [Antilles] Engineer, [ ] [Area] [Resident] [Antilles] Office within 10 working days.

Sea Turtle Beach Nest Monitoring

a. Sea Turtle (Work Stoppage) Window and Monitoring: If dredging and placement of material in the beach fill area along Florida Beaches has commenced on or before March 1st, turtle monitoring and nest location shall commence on March 1st and continue concurrently with the performance of work. If dredging and placement of material on Florida Beaches has not commenced prior to March 1st, the Contractor shall commence turtle

monitoring and nest location activities for a period of 65 days prior to performing any work (including movement of equipment) in the beach fill area or commence turtle monitoring March 1st whichever date is later. In such case, after turtle monitoring and nest location activities have been performed for a period of 65 days, the Contractor shall commence work in the beach fill area and continue the monitoring activities concurrently with performance of the work. In any case turtle monitoring and nest location/relocation activities are required through November 30th or until completion of the work on Florida Beaches, whichever is earlier.

b. Daily Visual Inspection: Turtle monitoring activities shall include performance of daily visual inspections of the beach at sunrise by a person permitted by the FF&WCC for handling sea turtle eggs. Any nests discovered shall be excavated and relocated prior to 9:00 a.m. to a nearby self-release beach location where artificial lighting and/or other disturbances shall not interfere with successful incubation, hatching nor hatchling orientation. A log of the results of turtle egg monitoring and recovery activities shall be kept and a copy submitted weekly to the Dr. Loren Mason, Chief, Environmental Branch, Jacksonville District (sample Marine Turtle Nesting Summary Report form is appended to the end of this Section).

c. Turtle Subcontractor: The Contractor shall have a [FF&WCC] [PRDNER] permitted subcontractor approved by the Contracting Officer to accomplish the sea turtle monitoring of this section unless he demonstrates to the satisfaction of the Contracting Officer the capability to accomplish sea turtle monitoring and recovery by obtaining a permit from the [FF&WCC] [PRDNER] to take turtles.

d. Report Submission: Following completion of the project, a copy of the Contractor's log regarding sea turtles shall be forwarded to the Chief, Environmental Branch and the [Area] [Resident] [Antilles] Engineer, [ ] [Area] [Resident] [Antilles] Office.

Beach Placement Restrictions

a. Equipment Lighting During Sea Turtle Nesting Period May 1st to November 30th: Direct lighting of the beach and near shore waters shall be limited to the immediate construction area and shall comply with safety requirements. Lighting on offshore or onshore equipment shall be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the waters surface and nesting beach while meeting all Coast Guard, COE EM 385-1-1, and OSHA requirements. Light intensity

of lighting plants should be reduced to the minimum standard required by OSHA for General Construction areas, in order not to misdirect sea turtles. Shields should be affixed to the light housing and be large enough to block light from all lamps from being transmitted outside the construction area. Refer to Beach Lighting Schematic appended to the end of this Section.

b. Pipeline Placement: Any construction pipes placed parallel to the shoreline shall be placed as far landward as possible up to the vegetated dune line.

c. Beach Tilling: Till the fill area between the landward edge and the seaward edge of the top of the berm with equipment operated so as to penetrate and loosen beach sand (a) to a depth of 36 inches and (b) laterally without leaving unloosened compact sand between the adjacent paths of tines or penetrating part of the equipment. (Suitable equipment is Caterpillar D9L/No. 9 Adjustable Parallelogram Multishank Ripper, or equal.) The Contractor shall be careful not to drag the beach where rock structures have been covered with less than 3 feet of sand.